Biopolymers

Contents

Volume 28, 1989

Issue 1, January 1989

Editors' Note i

Guest Editors' Note ii

Conformational Characteristics of Peptides and Unanticipated Results from Crystal Structure Analyses
I. L. Karle 1

^{17}O-NMR Studies of the Conformational and Dynamic Properties of Enkephalins in Aqueous and Organic Solutions Using Selectively Labeled Analogues
C. Sakarellos, I. P. Gerothanassis, N. Birlirakis, T. Karayannis, M. Sakarellos-Daitsiotis, and M. Marraud 15

A Crystal Molecular Conformation of Leucine-Enkephalin Related to the Morphine Molecule
A. Aubry, N. Birlirakis, M. Sakarellos-Daitsiotis, C. Sakarellos, and M. Marraud 27

The Renin-Angiotensin System: An Example of the Study of Linear Peptides by X-Ray Crystallography
G. Precigoux, M. Benkoulouche, and S. Geoffre 41

^{1}H-NMR Studies of Receptor-Selective Substance P Analogues Reveal Distinct Predominant Conformations in DMSO-d_6
D. Levian-Teitelbaum, N. Kolodny, M. Chorev, Z. Selinger, and C. Gilon 51

Conformationally Constrained Tachykinins: N-Methylated Analogues of Neurokinin A
P. Rovero, V. Pestellini, R. Patacchini, P. Santicioli, C. A. Maggi, and A. Meli 65

Conformational Behavior of Cyclic CCK-Related Peptides Determined by 400-MHz ^{1}H-NMR: Relationships with Affinity and Selectivity for Brain Receptors
P. Roy, B. Charpentier, C. Durieux, A. Dor, and B. P. Roques 69

Selective Agonists for Receptors of Substance P and Related Neurokinins
D. Regoli, S. Dion, N.-E. Rhaleb, N. Rouissi, C. Tousignant, D. Jukic, P. D'Orleans-Juste, and G. Drapeau 81

Bioactive Conformation of Linear Peptides in Solution: An Elusive Goal?
P. A. Temussi, D. Picone, M. A. Castiglione-Morelli, A. Motta, and T. Tancredi 91

Pseudopeptides and β Folding: X-Ray Structures Compared with Structures in Solutions
A. Aubry and M. Marraud 109

Conformational Properties of 2,3-Methanopyroglutamic Acid in Peptides: NMR and X-Ray Diffraction Studies
C. Mapelli, L. F. Elrod, F. L. Switzer, C. H. Stammer, and E. M. Holt 123

NMR Studies of a Series of Dehydrodermorphins
M. A. Castiglione-Morelli, G. Saviano, P. A. Temussi, G. Balboni, S. Salvadori, and R. Tomatis 129

Solid-State Conformations of Aminosuccinyl Peptides: Crystal Structure of *tert*-Butyloxycarbonyl-L-Leucyl-L-Aminosuccinyl-L-Phenylalaninamide
C. Capasso, L. Mazzarella, F. Sica, and A. Zagari 139

Synthesis and Structural Studies of N-*p*-Toluensulfonyl Cyclodipeptides
A. Calcagni, G. Lucente, F. Mazza, G. Pochetti, and D. Rossi 149

Cyclo (D-Pro-L-Pro-D-Pro-L-Pro): Structural Properties and *cis/trans* Isomerization of the Cyclotetrapeptide Backbone
W. Mästle, T. Weber, U. Thewalt, and M. Rothe 161

Structural Versatility of Peptides from $C^{\alpha,\alpha}$Dialkylated Glycines: Linear Ac_3c Homo-Oligopeptides
E. Benedetti, B. Di Blasio, V. Pavone, C. Pedone, A. Santini, M. Crisma, G. Valle, and C. Toniolo 175

Conformationally Constrained D,L-Alternating Oligopeptides
E. Fenude, L. Tomasic, and G. P. Lorenzi 185

Regularly Alternating L,D-Peptides. I. The Double-Stranded Left-Handed Antiparallel β-Helix in the Structure of Boc-(L-Val-D-Val)$_4$-OMe
B. Di Blasio, E. Benedetti, V. Pavone, C. Pedone, O. Spiniello, and G. P. Lorenzi ... 193

Regularly Alternating L,D-Peptides. II. The Double-Stranded Right-Handed Antiparallel β-Helix in the Structure of *t*-Boc-(L-Phe-D-Phe)$_4$-OMe
B. Di Blasio, E. Benedetti, V. Pavone, C. Pedone, C. Gerber, and G. P. Lorenzi 203

Regularly Alternating L,D-Peptides. III. Hexacyclic Peptides from Valine Phenylalanine
V. Pavone, E. Benedetti, B. Di Blasio, A. Lombardi, C. Pedone, L. Tomasich, and G. P. Lorenzi 215

^{1}H-NMR Studies of Synthetic Polypeptide Models of a *Plasmodium falciparum* Circumsporozoite Protein Tandemly Repeated Sequence
G. Esposito, A. Pessi, and A. S. Verdini 225

Structure of Conformationally Constrained Peptides: From Model Compounds to Bioactive Peptides
C. Toniolo 247

Structure of the Ion Channel Peptide Antibiotic Gramicidin A
D. A. Langs 259

A Lipid Vesicle System for Probing Voltage-Dependent Peptide–Lipid Interaction: Application to Alamethicin Channel Formation
G. A. Woolley and C. M. Deber 267

Design and Conformation of Non-Aib Synthetic Peptides Enjoying Alamethicin-Like Ionophore Activity
G. Molle, H. Duclohier, J.-Y. Dugast, and G. Spach 273

Structure and Stability of the Boc (D-Pro-L-Pro)$_2$OCH$_3$ Na^+ Complex: A Model of Poly(D,L-Proline), an Alkali Ion Channel Across Membranes
P. De Santis, A. Palleschi, M. Savino, and A. Scipioni 285

Tooth Enamel Protein, Amelogenin, Has a Probable β-Spiral Internal Channel, Gln_{112}–Leu_{138}, Within a Single Polypeptide Chain: Preliminary Molecular Mechanics and Dynamics Studies
V. Renugopalakrishnan, N. Pattabiraman, M. Prabhakaran, E. Strawich, and M. J. Glimcher 297

Bicyclic Peptides: Solution Conformation and Ca^{2+} Binding of the Heterodetic Bicyclic Decapeptide Cyclo(Glu^1-Leu^2-Pro^3-Gly^4-Ser^5-Ile^6-Pro^7-Ala^8)–Cyclo(1γ → 5β)Phe^9-Gly^{10}
G. Zanotti, F. Pinnen, G. Lucente, L. Paolillo, G. D'Auria, E. Trivellone, and M. D'Alagni 305

Stereoselective Electron Transfer Between Chiral Substrates and Metal Chelates Anchored to Polypeptides
B. Pispisa, A. Palleschi, and G. Paradossi 319

Synthesis of the Dodecapeptide Corresponding to Domain III of Bovine Brain Calmodulin: α-β Shift Side Reactions During the Synthesis by the Classical Method in Solution
G. Borin, A. Calderan, P. Ruzza, A. Pezzoli, F. Marchiori, and E. Peggion 333

Conformation and Ion Binding Properties of Peptides Related to Calcium Binding Domain III of Bovine Brain Calmodulin
G. Borin, P. Ruzza, M. Rossi, A. Calderan, F. Marchiori, and E. Peggion 353

Ala Analogues of the Cyclolinopeptide A
G. Zanotti, T. Tancredi, F. Rossi, E. Benedetti, C. Pedone, and P. Temussi 371

Conformational Analysis of Cyclic Peptides in Solution
H. Kessler, J.-W. Bats, K. Wagner, and M. Will 385

Interactive NMR and Computer Simulation Studies of Lanthionine-Ring Structures
D. E. Palmer, D. F. Mierke, C. Pattaroni, M. Goodman, T. Wakamiya, K. Fukase, M. Kitazawa, H. Fujita, and T. Shiba 397

The Crystal and Molecular Structure of the α-Helical Nonapeptide Antibiotic Leucinostatin A
S. Cerrini, D. Lamba, A. Scatturin, C. Rossi, and G. Ughetto 409

Mono and Two-Dimensional 500-MHz Characterization of Synthetic Bombesin and Related Peptides in DMSO and DMSO–Water
C. Di Bello, L. Gozzini, M. Tonellato, M. G. Corradini, G. D'Auria, L. Paolillo, and E. Trivellone 421

Conformation of Bombesin in Buffer and in the Presence of Lysolecithin Micelles: NMR, CD, and the Fluorescence Studies
P. Cavatorta, A. G. Szabo, G. Farruggia, L. Franzoni, and L. Masotti 441

Two-Dimensional ^{1}H-NMR Study of Synthetic Peptides Containing the Main Immunogenic Region of the *Torpedo* Acetylcholine Receptor
M. T. Cung, M. Marraud, I. Hadjidakis, E. Bairaktari, C. Sakarellos, A. Kokla, and S. Tzartos 465

Conformational Analysis of Peptide T and of Its C-Pentapeptide Fragment
A. Motta, D. Picone, P. A. Temussi, M. Marastoni, and R. Tomatis 479

Biologically Significant Conformation of the *Saccharomyces cerevisiae* α-Factor
F. Naider, L. A. Jelicks, J. M. Becker, and M. S. Broido 487

Molecular Dynamics of the α-Helical Epitope of a Novel Synthetic Lipopeptide Foot-and-Mouth Disease Virus Vaccine
M. Krug, G. Folkers, B. Haas, G. Hess, K.-H. Wiesmuller, S. Freund, and G. Jung 499

Comparison of the Conformations of Cyclolinopeptide A in the Solid State and in Solution
T. Tancredi, G. Zanotti, F. Rossi, E. Benedetti, C. Pedone, and P. A. Temussi 513

Computer Simulations of a Tumor Surface Octapeptide Epitope
R. H. Reid, C. A. Hooper, B. R. Brooks 525

Information for Contributors 531

Issue 2, February 1989

Molecular Mechanics Studies on Poly(Purine) · Poly(Pyrimidine) Sequences in DNA: Polymorphism and Local Variability
M. Bansal and N. Pattabiraman 531

Base and Conformational Specificity of an Amine Modification of DNA
D. Maibenco, P. Tang, R. Shinn, and S. Hanlon 549

Conformational Analysis of Cyclolinopeptide A, a Cyclic Nonapeptide: Nuclear Overhauser Effect and Energy Minimization Studies
S. Raghothama, C. Ramakrishnan, D. Balasubramanian, and P. Balaram 573

C-H ··· O Hydrogen Bonding in Solutions of Methylated Nucleic Acid Base Analogs as Revealed by NMR
V. I. Bruskov, V. N. Bushuev, M. S. Okon, N.V. Shulyupina, and V. I. Poltev 589

CD Spectra of Isoionic DNA Solutions
O. V. Davydova, I. A. Kuznetsov, and V. L. Florentiev 605

Electron Microscopy of Native Xanthan and Xanthan Exposed to Low Ionic Strength
B. T. Stokke, O. Smidsrod, and A. Elgsaeter 617

A Differential Scanning Calorimetric Study of the Conformational Transitions of Schizophyllan in Mixtures of Water and Dimethylsulfoxide
S. Kitamura and T. Kuge 639

Dynamic Light Scattering Measurements of the Diffusion of Probes in Filamentous Actin Solutions
J. Newman, N. Mroczka, and K. L. Schick 655

Low-Frequency Dynamics and Raman Scattering of Crystals, of B-, A, and Z-DNA, and Fibers of C-DNA
O. P. Lamba, A. H.-J. Wang, and G. J. Thomas, Jr. 667

Relaxed Potential Energy Surfaces of Maltose
V. Tran, A. Buleon, A. Imberty, and S. Perez 679

Information for Contributors 691

Issue 3, March 1989

Direct Examination of Chemical Kinetic Laws by Visual Imagery. IV. Association Processes Between Antigen- and Fragmented Antibody Carrying Fluorescent Latex Particles
H. Kitano, C. Yan, Y. Maeda, and N. Ise 693

Proton NMR Relaxation Study of the Dynamics of Anthopleurin-A in Solution
A. E. Torda and R. S. Norton 703

Thermodynamics of the Various Forms of the Dodecamer d(ATTACCGGTAAT) and of Its Constituent Hexamers from Proton NMR Chemical Shifts and UV Melting Curves: Three-State and Four-State Thermodynamic Model
J. M. L. Pieters, J.-R. Mellema, H. van den Elst, G. A. van der Marel, J. H. van Boom, and C. Altona 717

Hydration of B-DNA: Comparison Between the Network Around Poly(dG) · Poly(dC) and Poly(dG-dC) · Poly(dG-dC) on the Basis of Monte Carlo Computations
F. Eisenhaber, V. G. Tumanyan, F. Eisenmenger, and W. Gunia 741

Conformations of Dehydrophenylalanine Containing Peptides: NMR Studies of an Acyclic Hexapeptide with Two Δ^z-Phe Residues
V. S. Chauhan, K. Uma, P. Kaur, and P. Balaram 763

Solvated Helical Backbones: X-Ray Diffraction Study of Boc-Ala-Leu-Aib-Ala-Leu-Aib-OMe · H_2O
I. L. Karle, J. L. Flippen-Anderson, K. Uma, and P. Balaram 773

Information for Contributors 783

Issue 4, April 1989

ARTICLES

Dynamics Light Scattering Studies of Porcine Submaxillary Mucin Fractions in Dilute Solution at Intermediate Scattering Vectors
B. K. Varma, A. Demers, A. M. Jamieson, J. Blackwell, and N. Jentoft 785

Effect of the Mitogenic Lectin Concanavalin A on the Thermotropic Behavior of Glycosyl-Free Cationic Lipids and Their Mixtures with Zwitterionic Lipids
M. Lüscher-Mattli 799

Two-Dimensional Proton NMR Studies on Poly(VPGVG) and Its Cyclic Conformational Correlate, Cyclo(VPGVG)$_3$
D. W. Urry, D. K. Chang, N. R. Krishna, D. H. Huang, T. L. Trapane, and K. U. Prasad 819

A Theoretical Investigation of the Intercalative Binding of 7-H Pyrido[4.3C]carbazole Chromophore into a d(CpG)$_2$ Minihelix
R. Maroun and N. Gresh 835

Harmonic Dynamics of a DNA Hexamer in the Absence and Presence of the Intercalator Ethidium
B. R. Rudolph and D. A. Case 851

Modeling DNA Supercoils and Knots with B-Spline Functions
M.-H. Hao and W. K. Olson 873

RESEARCH COMMUNICATION

The Effect of Sequence-Specific Interactions on the Stability of the α-Helix in Synthetic Tropomyosin-Analogue Peptides
A. Holtzer 901

Information for Contributors 907

Issue 5, May 1989

Adduct-Induced Base-Shifts: A Mechanism by which the Adducts of Bulky Carcinogens Might Induce Mutations
E. L. Loechler 909

Association Kinetics of Site-Specific Protein–DNA Interactions: Roles of Nonspecific DNA Sites and of the Molecular Location of the Specific Site
S. J. Mazur and M. T. Record, Jr. 929

Flexibility of Smooth and Skeletal Tropomyosins
C. A. Swenson and N. C. Stellwagen 955

The 9-Fluorenylmethyloxycarbonyl Group as a 5′-OH Protection in Oligonucleotide Synthesis
Y. Ma and E. Sonveaux 965

The Electrostatic Potential of B-DNA
B. Jayaram, K. A. Sharp, and B. Honig 975

Comparison of α-Helix Stability in Peptides Having a Negatively or Positively Charged Residue Block Attached Either to the N- or C-Terminus of an α-Helix: The Electrostatic Contribution and Anisotropic Stability of the α-Helix
S. Takahashi, E.-H. Kim, T. Hibino, and T. Ooi 995

Small-Angle X-Ray Scattering Studies of Fibrin Film: Comparisons of Fine and Coarse Films Prepared with Thrombin and Ancrod
M. F. Müller, J. D. Ferry, and J. S. Lin 1011

Structure of DNA Hydration Shells Studied by Raman Spectroscopy
N. J. Tao, S. M. Linsway, and A. Rupprecht 1019

Information for Contributors 1031

Issue 6, June 1989

Calorimetric Study of the Effect of Intrachain Cross-Linking on Lysozyme Unfolding
S.-I. Segawa, M. Sugihara, T. Maeda, Y. Mitsuhisa, M. Kodama, S. Seki, and M. Sakiyama 1033

The Acceleration of Linear DNA During Pulsed-Field Gel Electrophoresis
G. Holzwarth, K. J. Platt, C. B. McKee, R. W. Whitcomb, and G. D. Crater 1043

Monte Carlo Studies on Equilibrium Globular Protein Folding. II. β-Barrel Globular Protein Models
J. Skolnick, A. Kolinski, and R. Yaris 1059

Monte Carlo Studies on Equilibrium Globular Protein Folding. III. The Four Helix Bundle
A. Sikorski and J. Skolnick 1097

Two-Dimensional ^{1}H-NMR Study of the 1–34 Fragment of Human Parathyroid Hormone
S. C. Lee and A. F. Russell 1115

Site-Specific Laser Modification (Cleavage) of Oligodeoxynucleotides
L. Z. Benimetskaya, N. V. Bulychev, A. L. Kozionov, A. A. Koshkin, A. V. Lebedev, S. Y. Nocozhilov, and M. I. Stockman 1129

Conformation of a Bulge-Containing Oligomer from a Hot-spot Sequence by NMR and Energy Minimization
S. A. Woodson and D. M. Crothers 1149

Counterion Diffusion in Heparin Solutions
P. Tivant, A. Perera, P. Turq, and L. Belloni 1179

Information for Contributors 1187

Issue 7, July 1989

Phonon Interpretation of Inelastic Neutron Scattering in DNA Crystals
W. K. Schroll, V. V. Prabhu, E. W. Prohofsky, and L. L. Van Zandt 1189

Prediction of DNA Structure from Sequence: A Build-up Technique
B. E. Hingerty, S. Figueroa, T. L. Hayden, and S. Broyde 1195

Sequence Dependence of the B-A Conformational Transition of DNA
J. Mazur, A. Sarai, and R. L. Jernigan 1223

Ca^{2+} Binding Cyclic Octapeptides Having an Alternating Sar and a Hydrophobic Amino Acid in the Sequence
S. Kimura, E. Ozeki, and Y. Imanishi 1235

Ca^{2+} Transport Through Lipid Membrane by Diastereomer Cyclic Octapeptides
S. Kimura, E. Ozeki, and Y. Imanishi 1247

Role of Water Molecules in the Crystal Structure of Gly-L-Ala-L-Phe: A Possible Sequence Preference for Nucleation of α-Helix?
N. Ramasubbu and R. Parthasarathy 1259

Two γ-Bends in the Backbone Conformation of [D-Ala^2]-Leucine Enkephalin in Solution
M. M. Dhingra and A. Saran 1271

Crystal Structure and Molecular Conformation of the Peptide N-Boc-L-Gly-Dehydro-Phe-$NHCH_3$
T. P. Singh, P. Narula, V. S. Chauhan, and P. Kaur 1287

Light Scattering Studies of Bovine Skin Proteodermatan Sulfate
D. Zangrando, R. Gupta, A. M. Jamieson, J. Blackwell, and P. G. Scott 1295

Solvation Thermodynamics of Biopolymers. I. Separation of the Volume and Surface Interactions with Estimates for Proteins
A. Ben-Naim, K.-L. Ting, and R. L. Jernigan 1309

Solvation Thermodynamics of Biopolymers. II. Correlations Between Functional Groups
A. Ben-Naim, K.-L. Ting, and R. L. Jernigan 1327

RESEARCH COMMUNICATIONS

The Interaction of Calcium (II) with DNA Probed by ^{43}Ca-NMR Is Not Influenced by Terminal Phosphate Groups at Ends and Nicks
W. H. Braunlin, L. Nordenskiöld, and T. Drakenberg 1339

Information for Contributors 1343

Issue Issue 8, August 1989

New X-Ray Diffraction Results from Agarose: Extended Single Helix Structures and Implications for Gelation Mechanism
S. A. Foord and E. D. T. Atkins 1345

The Regulation of Size and Form in the Assembly of Collagen Fibrils in Vivo
J. A. Chapman 1367

Electric Dichroism and Bending Amplitudes of DNA Fragments According to a Simple Orientation Function for Weakly Bent Rods
D. Porschke 1383

The Stabilization of β-Lactoglobulin by Glycine and NaCl
T. Arakawa 1397

A Calorimetric Approach to the Study of the Interactions of Cytidine-3′-Phosphate with Bovine Seminal Ribonuclease
R. Ambrosino, G. Barone, G. Castronuovo, O. Cultrera, A. Di Donato, and V. Elia 1403

Relaxation Effects in the Gel Electrophoresis of DNA in Intermittent Fields
T. Jamil, H. L. Frisch, and L. S. Lerman 1413

Temperature and Concentration Behavior of Anomalous Microwave Resonances in DNA
M. E. Davis and L. L. Van Zandt 1429

Properties of Amidated Pectins. II. Polyelectrolyte Behavior and Calcium Binding of Amidated Pectins and Amidated Pectic Acids
E. Racape, J. F. Thibault, J. C. E. Reitsma, and W. Pilnik 1435

Long-Range Structural Effects in Supercoiled DNA: Statistical Thermodynamics Reveals a Correlation Between Calculated Cooperative Melting and Contextual Influence on Cruciform Extrusion
F. Schaeffer, E. Yeramian, and D. M. J. Lilley 1449

The Sieving of Spheres During Agarose Gel Electrophoresis: Quantitation and Modeling
G. A. Griess, E. T. Moreno, R. A. Easom, and P. Serwer 1475

The Osmotic Coefficients of the Sodium Form of Some Biopolymers
L. K. Jang, E. J. Quintero, G. Gordon, M. Röhricht, and G. G. Geesey 1485

RESEARCH COMMUNICATIONS

Measurement of Electrophoretic Mobility of Dye-Labeled Large DNA Fragments in Agarose Gels by Movement of Fluorescence Pattern After Photobleaching
B. Chu, Z. Wang, and C. Wu 1491

Information for Contributors 1495

Issue 9, September 1989

Orientational and Rotational Velocity Correlation Functions for Water-Hydrating B- and Z-DNA Double Helices
K. N. Swamy and E. Clementi 1497

Time-Resolved Synchrotron Radiation X-Ray Solution Scattering Study of DNA Melting
J. Puigdomenech, L. Perez-Grau, J. Porta, M. C. Vega, P. Sicre, and M. H. J. Koch 1505

Raman Spectroscopy of Supercoiled and Nicked ColE1 Plasmid
W. A. Christens-Barry, J. C. Martin, and J. Lebowitz 1515

Local Dynamics in Biological Macromolecules
A. Perico 1527

Orientational Dynamics of T2 DNA During Agarose Gel Electrophoresis: Influence of Gel Concentration and Electric Field Strength
B. Åkerman, M. Jonsson, B. Nordén, and M. Lalande 1541

Free Energy of Hydration of Collagen Models and the Transition Between the Triple-Helical Coiled-Coil and Single-Stranded Conformations
G. Némethy and H. A. Scheraga 1573

Aggregation of Amphotericin B in the Presence of γ-Cyclodextrin
M. Kajtár, M. Vikmon, E. Morlin, and J. Szejtli 1585

The CD of Two-Chain Coiled Coils: Experiments on Tropomyosin and Tropomyosin Segments in the Tyrosine/Disulfide Spectral Region
M. E. Holtzer, S. Kumar, A. Holtzer, and D. L. Crimmins 1597

CD and Small-Angle X-Ray Scattering of Silk Fibroin in Solution
M. Canetti, A. Seves, F. Secundo, and G. Vecchio 1613

A Temperature-Dependent Z to B to Single-Strand Transition in d(CGCG)
G. A. Thomas and W. L. Peticolas 1625

On the Cooperative Binding of Large Ligands to a One-Dimensional Homogeneous Lattice: The Generalized Three-State Lattice Model
W. Bujalowski, T. M. Lohman, and C. F. Anderson 1637

RESEARCH COMMUNICATION

Unusual Condensation Behavior of Poly(dA)-Poly(dT)
J. B. Chaires 1645

Information for Contributors 1651

Issue 10, October 1989

Protein Compexation with DNA Phosphates as a Cause for DNA Duplex Destabilization: A Thermodynamic Model
M. H. P. Van Genderen and H. M. Buck 1653

Theory of Cooperative Transitions in Protein Molecules. I. Why Denaturation of Globular Protein is a First-Order Phase Transition
E. I. Shakhnovich and A. V. Finkelstein 1667

Theory of Cooperative Transitions in Protein Molecules. II. Phase Diagram for a Protein Molecule in Solution
A. V. Finkelstein and E. I. Shakhnovich 1681

Effects of Chloroquine on the Torsional Dynamics and Rigidities of Linear and Supercoiled DNAs at Low Ionic Strength
P. Wu and J. M. Schurr 1695

Allosteric Formulation of Thermal Transitions in Macromolecules, Including Effects of Ligand Binding and Oligomerization
C. H. Robert, A. Colosimo, and S. J. Gill 1705

Conformational Transitions of Leucine-Containing Isomeric Sequential Basic Polytripeptides
Š. Štokrová, M. Bohdanecký, K. Bláha, and J. Šponar 1731

Inverted Repeat Sequences Can Influence the Melting Transitions of Linear DNAs
C. R. McCampbell, R. M. Wartell, and R. R. Plaskon 1745

IR Vibrational CD in Alanyl Tripeptide: Indication of a Stable Solution Conformer
O. Lee, G. M. Roberts, and M. Diem 1759

Solution Conformation of the Actinomycin D Related Pentapeptide Lactone Using NMR and Molecular Modeling
A. B. Mauger, K. S. Gallagher, J. V. Silverton, and J. A. Ferretti 1771

The Biased Reptation Model of DNA Gel Electrophoresis: Mobility vs Molecular Size and Gel Concentration
G. W. Slater and J. Noolandi 1781

DNA Gel Electrophoresis: Effect of Field Intensity and Agarose Concentration on Band Inversion
G. W. Slater, C. Turmel, M. Lalande, and J. Noolandi 1793

The Influence of the Side-Chain Sequence on the Structure–Activity Correlations of Immunomodulatory Branched Polypeptides. Synthesis and Conformational Analysis of New Model Polypeptides
G. Mező, F. Hudecz, J. Kajtár, Gy. Szókan, and M. Szekerke 1801

RESEARCH COMMUNICATION

DNA Backbone Flexibility and the Z Access for Phosphodiester Linkage: A Quantum Molecular Approach
H. Broch and D. Vasilescu 1827

Complete ^{13}C Resonance Assignments of Tryptophan in L-Lysyl-L-Tryptophyl-L-Lysine by Single-Bond and Multiple-Bond Correlated ^{1}H–^{13}C Two Dimensional NMR
B.-H. Oh and J. L. Markley 1833

Information for Contributors 1839

Issue 11, November 1989

Vibrational Free Energy, Entropy, and Temperature Factors of DNA Calculated by a Helix Lattice Approach
K. S. Girirajan, L. Young, and E. W. Prohofsky 1841

A CD Determination of the α-Helix Contents of the Coat Proteins of Four Filamentous Bacteriophages: fd, IKe, Pf1, and Pf3
B. A. Clack and D. M. Gray 1861

Dielectric Relaxation in Synthetic Melanin
W. Osak, K. Tkacz, J. Sławinski, and H. Czternastek 1875

I – *V* Characteristics and Electrical Conductivity of Synthetic Melanin
W. Osak, K. Tkacz, H. Czternastek, and J. Sławinski 1885

Glycosaminoglycan Conformations and Changes on Periodate Oxidation
N. Ueno and B. Chakrabarti 1891

A Monte Carlo Simulation Study of the Influence of Internal Motions on the Molecular Conformation Deduced from Two-Dimensional NMR Experiments
D. Genest 1903

NMR Studies on the Induced Denaturation of Lysozyme by Guanidine Hydrochloride in the Presence of the Inhibitor $(NAG)_3$
M. Sheinblatt 1913

Secondary Structure of a Core Protein from Pig Skin Proteodermatan Sulfate: CD and Fourier Transform IR Spectroscopic Studies in Solution
V. Renugopalakrishnan, S. P. Damle, P. M. Horowitz, S. Moore, T. B. Hutson, and J. D. Gregory 1923

Secondary Structure of Pig Skin Proteodermatan Sulfate: A Perspective from Raman Spectroscopic Studies in Aqueous Solution
V. Renugopalakrishnan, S. Zheng, A. T. Tu., and S. P. Damle 1935

Effects of Nucleotide Bromination on the Stabilities of Z-RNA and Z-DNA: A Molecular Mechanics/Thermodynamic Perturbation Study
W. S. Ross, C. C. Hardin, I. Tinoco, Jr., N. Rao, D. A. Pearlman, and P. A. Kollman 1939

Conformational Characteristics of Polyglutamic Acid Esters: Persistence of Orientational Correlation Along the Side Chain Flanking the α-Helical Backbone
T. Yamazaki, A. Abe, H. Ono, and H. Toriumi 1959

Probe Diffusion in Cross-Linked Actin Gels
J. Newman, K. L. Schick, and K. S. Zaner 1969

The Effects of pH on Hyaluronate as Observed by Light Scattering
C. E. Reed, X. Li, and W. F. Reed 1981

The Concentration Dependence of the Diffusion Coefficient for Bovine Pancreatic Trypsin Inhibitor: A Dynamic Light Scattering Study of a Small Protein
W. H. Gallagher and C. K. Woodward 2001

Vibrational CD Studies of the Solution Conformation of Simple Alanyl Peptides as a Function of pH
W. M. Zuk, T. B. Freedman, and L. A. Nafie 2025

Information for Contributors 2045

Issue 12, December 1989

IR Vibrational CD in Model Deoxyoligonucleotides: Observation of the B → Z Phase Transition and Extended Coupled Oscillator Intensity Calculations
M. Gulotta, D. J. Goss, and M. Diem 2047

A Rigorous Mathematical Treatment for the Excluded Volume Effect in Monte Carlo Simulations of Polymeric Chains
E. Yeramian, F. Schaeffer, B. Caudron, P. Claverie, and H. Buc 2059

A Critical Examination of the Reaction of Pyridoxal 5-Phosphate with Human Hemoglobin A_0
M. A. Marini, G. L. Moore, R. M. Fishman, R. Jessee, F. Medina, S. M. Snell, and A. I. Zegna 2071

Superoxide Dismutase: Fluctuations in the Structure and Solvation of the Active Site Channel Studied by Molecular Dynamics Simulation
J. Shen, S. Subramaniam, C. F. Wong, and J. A. McCammon 2085

^{1}H-NMR Studies of a Monointercalating Drug into a d(CpGpApTpCpG)$_2$ Minihelix
M. Delepierre, T. H. Dinh, and B. P. Roques 2097

Bisintercalation of Ditercalinium into a d(CpGpApTpCpG)$_2$ Minihelix: A ^{1}H- and ^{31}P-NMR Study
M. Delepierre, T. H. Dinh, and B. P. Roques 2115

Differential Scanning Calorimetric Study of the Thermal Unfolding of Myosin Rod, Light Meromyosin, and Subfragment 2
J. L. Lopez-Lacomba, M. Guzman, M. Cortijo, P. L. Mateo, R. Aguirre, S. C. Harvey, and H. C. Cheung 2143

Interactions of Nucleic Acids with Distamycins. The Drug Monomeric Chromophore
A. Forni, I. Moretti, G. Torre, G. Marconi, and B. Samori 2161

Linear Dichroism Studies of the Complexes Between CT-DNA and Distamycins
A. Forni, I. Moretti, G. Marconi, N. Mongelli, and B. Samori 2177

RESEARCH COMMUNICATION

Characterization of the Reaction Products of Adult Human Hemoglobin and Disuccinimidyloxalate
M. A. Marni, S. Christensen, S. Snell, R. Jessee, F. Medina, and A. Zegna 2195

ERRATUM

The Regulation of Size and Form in the Assembly of Collagen Fibrils in Vivo
J. A. Chapman 2201

Author Index 2207

Subject Index 2217

Information for Contributors 2225

Volume Contents 2229